

Terms of Reference

Consultant for Establishment of Data Interoperability Standards

Background

The Department of Information Technology under the Ministry of Information and Communication will be establishing Data Interoperability Standards for data that are commonly used across several agencies. Such a need has been felt in view of several Systems being developed independently by different agencies and the subsequent need to integrate these Systems to share data in an efficient manner. Currently, most of the agencies use their own Data Standards for even Data that are similar. This poses an obstacle during System Integration because of the inefficiency of requiring additional information to be transferred for one System to understand the data from another System. As of now two standards have been established: the Dzongkhag and Geog Code by the Ministry of Home and Cultural Affairs and the Government Agencies Code by the Department of Information Technology. This study will need to take into account the various formats, adopted by different agencies, in coming up with common standards and then propose transition strategies for the agencies to adopt these common standards.

Objectives of the Study

The main objectives of this study are:

1. To identify the various data that are commonly used across several agencies (Scope of Data Standardization)
2. To collect the various formats/standards adopted by different agencies
3. To assess/analyze these formats/standards and come up with common standards for similar data
4. To frame and propose Transition Strategies for the agencies to adopt these common standards in an efficient and timely manner
5. To maintain a Data Dictionary for these standards which will store information such as Data Name, Data Type, Data Description, Context of Use etc.

Scope of the Study

The study will involve the following specific tasks:

Task 1: Determine Scope of Data Standardization

The consultant shall carry out a survey across several agencies to identify their needs/requirements for standardizing data that these agencies feel are common among other agencies as well and consequently crucial for System Integration. To this effect, DIT has already carried out a preliminary Study among the Government Agencies which will be available to the consultant as a basis to start with. Dzongkhag and Geog Codes and Government Agencies Codes are two such data that have already been identified as important for standardization.

Upon completion of this task, the consultant should have a clear understanding of the needs/requirements of the various agencies pertaining to data standardization.

Task 2: Data Collection

In collaboration with Task 1 or independently, the consultant shall also collect the standards/formats used by individual agencies for common data that needs to be standardized. This will involve collecting database schema and table designs in case of data that are stored in databases and the actual codes/formats used along with examples to show the context in which these data codes are used.

Upon completion of this task, the consultant should have all the formats adopted by the individual agencies for the data that have been identified to be standardized.

Task 3: Assessment and Analysis

Once the individual formats and standards have been collected, the consultant will have to assess and analyze these formats/standards and weigh their pros and cons. Based on these standards, the consultant will have to propose a new standard that will be:

- **Scaleable**- receptive to possible future changes in organization structure, expansions etc.
- **Transition Friendly**- transition to the new standard must be easy and efficient. For this it will need to take into account factors such as User Base (number of users both agencies as well as Systems), amount of data, etc of the existing standards
- **Intuitive**- the new standard must be easy to understand (User Friendly)

Upon completion of this task, the consultant should have established common standards for the data that have already been identified as essential for standardization. These standards must fit into the criteria listed above.

Task 4: Frame Transition Strategies

The next task for the consultant would be to frame strategies that will allow the agencies to adopt the newly established standards. These strategies must be at the individual agencies level or, in case of multiple agencies using similar standards, at a group level. Several factors may need to be taken into account while framing these strategies some of which are mentioned below:

- The status of the System (whether already in place, currently being developed or planned etc.)
- The amount of changes that would be necessary for an agency to adopt the new standard. If a lot of changes is required, which would hamper the functioning of a System, then maybe a gradual transition can be recommended or take the System off line and make changes at a go.
- The capability of an agency to implement the transition independent of outside assistance
- Whether the changes at the central site might need to be propagated to other sites (In case of agencies with branches around the country)

A more detailed list of factors must be taken into consideration by the consultant which can be noted during the Data Collection process in consultation with the agencies. Upon completion of

this task, the consultant should have Transition Strategies in place for the agencies to switch from their respective formats/standards to the new common standards. These strategies will then be proposed to the concerned agencies.

Task 5: Maintain Data Dictionary

Through out the study, the consultant is expected to maintain a Data Dictionary that will store information about the various standards that exists or will be established. Some of the fields in this Data Dictionary will be:

- Data Name
- Data Description
- Data Type
- Context of Use

Other details can be included by the consultant or DIT during discussions between the two. Upon completion of the study, the Data Dictionary must be able to tell the reader what the various codes mean, what purpose they server, where they are used etc.

In carrying out all of the above tasks, the consultant will be working closely with DIT.

Duration of Study and Expected Outputs

The proposed duration of the study is a period one month. The first first week will be used exclusively for identifying the scope of data standardization and data collection. A period of two weeks will be devoted for assessing and analyzing the various current standards and then coming up with new standards. The final week will be used for framing strategies that will allow the agencies to transit to adopting the new standards in an efficient manner. However, this is only a tentative schedule and will be validated during discussions with the consultant.

At the end of the study, the consultant is expected to produce the following:

- Common Standards for data that have been identified for standardization
- Transition Strategies that will allow the agencies to adopt these standards without too much difficulty
- Data Dictionary that will act as a repository of all important details for data that are standardized

Qualifications and Experience

The consultant should have any of the following minimum qualifications:

- Bachelors in Information Technology
- Bsc. Computer Honours
- Bachelor in Computer Applciations
- Bachelors in other computer related fields

Experience in Database Systems and good knowledge of databases will be a plus.